

## REGION 4

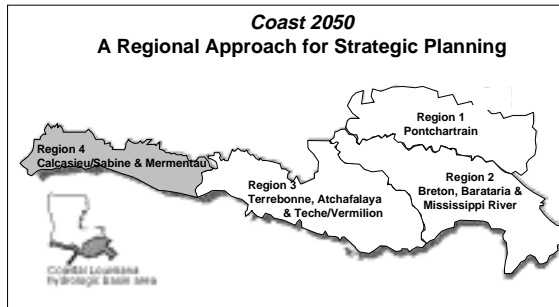
Region 4 extends from the western bank of the Freshwater Bayou Canal westward to the Louisiana/Texas border in Sabine Lake, and from the marsh areas just north of the Gulf Intracoastal Waterway south to the Gulf of Mexico. This region covers all or part of Vermilion, Cameron, and Calcasieu parishes.

Region 4 includes the Mermentau and Calcasieu/Sabine hydrologic basins and contains approximately 768,210 acres of coastal wetlands which are classified as approximately 520

acres of cypress-tupelo swamps; 9,590 acres of bottomland hardwood forests; 354,600 acres of fresh; 171,700 acres of intermediate; 198,600 acres of brackish; and 33,200 acres of saline marshes.

The Mermentau basin extends from Freshwater Bayou Canal westward to Highway 27 and is divided into two subbasins in the vicinity of the Pecan Island and Grand Chenier ridges. The natural drainage of the Lakes subbasin (to the north) has been interrupted by canals and water control structures. The subbasin contains Grand and White Lakes and functions similar to a large freshwater impoundment. The Mermentau River supplies fresh water to the basin. The Chenier subbasin lies to the south of the Pecan Island and Chenier ridges. Drainage can occur eastward to Freshwater Bayou Canal, southward to the Gulf of Mexico, and westward to the Mermentau River and Ship Channel.

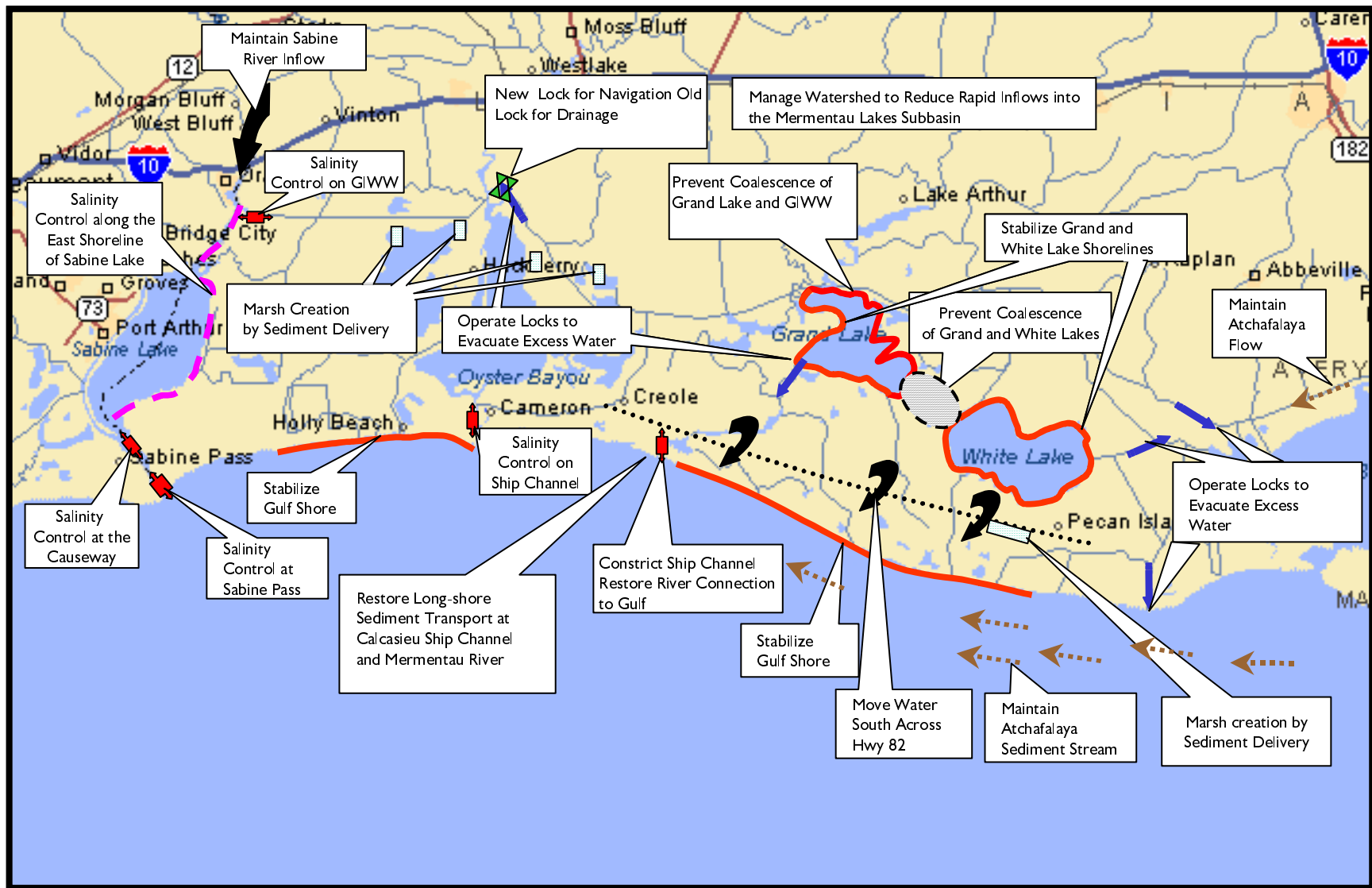
The Calcasieu/Sabine basin is a shallow coastal wetland system with freshwater input at the north end, a north-south circulation pattern through Calcasieu and Sabine Lakes, and east-west water movement through the Gulf Intracoastal Waterway (GIWW) and interior canals. Both lakes are connected to important shipping corridors and are also used for recreation. As in the Mermentau basin, many wetlands in Region 4 are actively



managed, with structures in the Cameron-Creole Watershed, Sabine National Wildlife Refuge, and on private lands.

The major concerns within this region are to reduce salinities of the marsh habitats in the western and southern areas of the region and convert most of the Lakes subbasin to fresh marsh. The objective for the Chenier subbasin is to convert the existing saline and brackish marshes to brackish and intermediate marshes by the year 2050. The objective for the Calcasieu/Sabine basin is to create fresher conditions by the year 2050.

Specific ecosystem strategies include: (1) restoring and maintaining wetlands by modifying operations of existing locks to evacuate excess water, restore the original Mermentau River/Gulf of Mexico connection, create wetlands with dedicated dredge material, and maintain Atchafalaya River flow through the GIWW; (2) controlling salinity in the Calcasieu Ship Channel between the Gulf of Mexico and Calcasieu Lake; (3) controlling salinity in the Sabine basin by maintaining Sabine River flow, and implementing various salinity control measures; and (4) protecting bay and lake shorelines by stabilization, maintaining the Atchafalaya River mudstream, restoring longshore sediment flow across navigation channels, and preventing the coalescence of Grand and White Lakes. These ecosystem strategies are illustrated in figure 12.



**Figure 12.** Coast 2050 region 4 ecosystem strategies (Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration Authority, 1998).

## REGION 4 MONITORING RESULTS

Estimates of wetland loss from Region 4 indicate that between 1932 and 1990, a total of 226,000 acres of wetlands were lost (an average of 3,897 acres per year). More recent estimates from the 1978-1990 time period indicate that the wetland loss rate was even higher during this shorter time period and averaged 4,288 acres per year. The projects discussed below have addressed some significant problems. Region 4 projects have been authorized at 97 locations.

### BREAUX ACT (CWPPRA)

A total of 26 projects have been authorized under the direction of the Breaux Act, which are estimated to benefit 23,252 acres with a current estimated cost of \$56,951,389.

The Breaux Act projects that address marsh loss caused by changes in natural hydrology include Cameron-Creole Maintenance (CS-04a), Humble Canal Hydrologic Restoration (CS-11), Cameron Creole (CS-17), Black Bayou (CS-27), Black Bayou Hydrologic Restoration (CS-29), Freshwater Bayou Wetland (ME-04), Freshwater Introduction South of Hwy 82 (ME-16), and Little Pecan Bayou Control Structure (ME-17). The goals of these projects are to control water level, water exchange, and salinity. These projects reduce erosion, improve hydrology, and increase vegetative cover.

The four (4) Breaux Act marsh

management projects which address conversion of marsh to open water and subsequent changes in marsh vegetation include Brown Lake (CS-09a), East Mud Lake (CS-20), Hwy 384 (CS-21), and Replace Hog Island, West Cove, and Headquarter Structures (CS-23). These



Water control structure at East Mud Lake (CS-20).

projects will return marshes to more natural hydrologic conditions through the use of structures that restrict water exchange and control salinities. Additionally, non-structural features such as vegetation plantings will reduce erosion and stabilize fragile soils.

Eight (8) Breaux Act shoreline protection projects have been authorized: Sweet Lake/Willow Lake (CS-09); Sabine Refuge (CS-18); Perry Ridge (CS-24); Clear Marais (CS-22); Cameron Prairie Refuge (ME-09); Southwest Shore White Lake Protection Demonstration (ME-12); Perry Ridge West Bank Stabilization/Terracing (CS-30); and Freshwater Bayou Bank Stabilization



Rock dikes constructed along Freshwater Bayou (ME-13).

(ME-13). These projects involve various techniques designed to decrease shoreline erosion rates. The rock dikes at Freshwater Bayou have reversed wave-induced shoreline erosion. The reference area eroded at 6.5 feet per year for the first year after construction, whereas the project area shoreline actually prograded at a rate of 2.34 feet per year.

The Breaux Act sediment and nutrient trapping projects, Plowed Terraces Demonstration (CS-25) and Pecan Island Terracing (ME-14), both constructed in 2000, are designed to demonstrate the cost effectiveness of creating terraces with a plow, rather than with the more traditionally used drag line and bucket dredge. Once vegetated, the newly created emergent wetlands will trap sediment and reduce wave energy, protecting interior marshes.

The goals of the two (2) vegetation planting Breaux Act projects, West Hackberry (CS-19) and Dewitt Rollover Plantings Demonstration (ME-08), are to increase vegetation cover by planting vegetation and to minimize wave and wind driven erosion. The Dewitt-Rollover project was planted in 1994, however the plants did not survive and this project was discontinued.

One pending Breaux Act project to be constructed in 2001, Compost Demonstration (CS-26), is a marsh creation project which will create marsh in shallow waters with dredged material, then determine the effects of compost on establishing vegetation in that marsh.

## **NON-BREAUX ACT**

### **State**

Seven (7) restoration projects have been implemented by the Coastal Restoration Division and funded through the Wetlands Trust Fund. These projects are estimated to benefit 1,972 acres with a current estimated cost of \$10,582,546.

Shoreline protection projects have been implemented utilizing a variety of techniques. Holly Beach (CS-01), constructed in phases between 1991 and 1994, addressed the issue of shoreline erosion by utilizing segmented rock breakwaters. Monitoring data indicate that 49,284 cubic yards of sediment



Segmented rock breakwaters constructed at Holly Beach (CS-01).

accumulated behind the breakwaters from 1990 to 1995. The Sabine Shellbank Stabilization is a shoreline protection project utilizing shell to minimize shoreline erosion. The Blind Lake shoreline protection project used limestone breakwaters and vegetation plantings along the GIWW adjacent to Blind Lake. Brannon Ditch is a vegetation project along the GIWW that utilized vegetation and a protective wooden wave-damping fence to protect the shoreline from continued erosion.

The Sabine Terrace project has decrease shoreline erosion and promoted vegetation growth and sedimentation in the Sabine Wildlife Refuge by constructing 128 earthen terraces in a checkerboard pattern in shallow open water to minimize erosion



The Sabine Terrace project showing newly constructed terraces (top), terraces with new vegetation growth (middle), and an aerial photograph of the completed project (bottom).

from wind-induced waves. Monitoring data show that a preconstruction annual shoreline retreat rate of -11.6 feet/year has been reversed. After construction, the average annual shoreline movement was an advance of +21.0 feet/year between 1990 and 1993. Also, wave heights in the area have been reduced significantly, primary production has increased, vegetation coverage has increased, and emergent marsh has been reestablished.

The Rycade Canal (CS-02) marsh management project, constructed in 1994, involves hydrologic modifications designed to decrease salinity and improve marsh conditions.

The Pecan Island (ME-01) freshwater diversion project, constructed in 1992, provides sediment, nutrients, and fresh water from White Lake to surrounding wetlands south of the Pecan Island cheniere. Cameron Creole (CS-04a-1), constructed in 1999, is a hydrologic restoration project which will address problems associated with saltwater intrusion and marsh impoundment.

### **Parish Coastal Wetlands Restoration Program**

Nine (9) Christmas tree projects have been implemented including Ellender Bridge, Goose Lake, Turner Bay, Kelso Bayou, Portie Lakes, Cameron Creole, Cameron Creole #2, and Black Lake. Since 1990, approximately 8,723 linear feet of fences have been built in Region 4. These projects will trap and retain sediment and nutrients, protect shoreline areas from erosion, and promote plant colonization. Christmas tree fences



are relatively inexpensive, with an average cost of \$50 per foot in region 4.

The Christmas tree program has also funded the first phase of two vegetation projects, Collicon Lake and Turner's Bay. Twelve hundred (1,200) plants totaling 6,000 linear feet were planted in these two sites. Subsequent plantings in these projects were funded by the DNR/NRCS/SWCC Vegetation Planting Program.

### **DNR/NRCS/SWCC Vegetation Planting Program**

Vegetation planting projects have



Christmas tree fence at Ellender Bridge after construction (top) and after several years (bottom). Notice the same bridge in the background.

been implemented at 52 sites within Region 4. Since 1987, more than 261,385 plants have been installed (most were California bullrush, *Scirpus californicus*, or smooth cordgrass, *Spartina alterniflora*) protecting over 845,357 linear feet of shoreline. In only four (4) years, the plantings at Blind Lake



Vegetation being planted at Blind Lake.

spread into a strip 20 feet wide with excellent plant survival.

### **Section 204/1135**

Two (2) Section 204 projects have been constructed in Region 4. These projects utilized dredged material from routine maintenance of the Calcasieu Lake Ship Channel to benefit areas along the shore of Calcasieu Lake and areas in the Sabine National Wildlife Refuge. A total of 982 acres of new wetlands have been created by these projects.



Smooth cordgrass planted at West Alkali Ditch.

**Table 4.** Restoration projects completed or pending in Coast 2050 Region 4.

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Breux Act	CS-04a (CS-04a)	<b>Cameron-Creole Maintenance</b>	HR	3	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	2,602	C \$62,647	1997 \$0	I \$3,736,718	\$3,719,926 \$3,799,365
		Cameron/Creole Maintenance includes maintenance provisions for 19 miles of levee and five (5) structures. This project is not monitored with Breux Act funds, and only seeks to keep the levees and structures of the Cameron/Creole Watershed Management Project in good condition. The Cameron/Creole Watershed Management Project was constructed before the Breux Act was authorized and was funded as a Louisiana state project under the auspices of NRCS small watershed program (PL-566).										
	CS-09a (CS-09)	<b>Brown Lake Hydrologic Restoration</b>	MM	2	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	282	C \$234,700	2001* \$1,714,400	I \$1,252,790	\$3,222,800 \$3,201,890
		Wetlands surrounding Brown Lake have suffered since the construction of the GIWW and the Calcasieu Ship Channel. These major navigation channels have allowed salt water to enter surrounding marshes and exposed the wetlands to increased erosion from wind and waves. This project includes installing and maintaining water control structures to reduce fluctuations in salinity and water level, constructing levees and terraces to dissipate wave energy and promote establishment of aquatic vegetation, and planting vegetation on exposed mudflats to help stabilize and protect eroding shorelines. Salinity, water level, and vegetation will be monitored to determine the project's effectiveness.										
	CS-11b (CS-11b)	<b>Sweet Lake/Willow Lake Hydrologic Restoration</b>	SP/HR	5	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	247	C \$522,400	2000 \$3,848,600	I \$639,762	\$4,800,000 \$5,010,762
		As a result of waves and boat wakes, the GIWW spoil bank that protects the fragile marshes around Sweet Lake and Willow Lake has eroded and breached in several places. The GIWW has encroached on the lakes and their surrounding marshes threatening to create one large open water body, exposing the marshes to salt water and erosive processes. This project includes construction of rock embankments on the GIWW to close off the lakes, vegetative plantings to reduce erosion, and construction of earthen terraces combined with vegetation plantings in open water areas to promote growth of vegetation. Vegetation and shoreline change will be monitored.										
	CS-17 (FCS-17)	<b>Cameron/Creole Plugs</b>	HR	1	USFWS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	865	C \$62,000	1996 \$387,930	I \$572,756	\$660,460 \$1,022,686
		The implementation of this project will limit salinity influxes and excessive water pooling adjacent to Calcasieu Lake in Cameron/Creole Watershed project. This will be accomplished by the construction of two (2) plugs within the interior borrow canal of the Calcasieu Lake Eastern Levee.										
	CS-18 (FCS-18)	<b>Sabine Refuge Erosion Protection</b>	SP/HR	1	USFWS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	5,542	C \$195,000	1995 \$989,800	I \$391,903	\$4,895,780 \$1,576,703
		This project is intended to protect an impounded freshwater marsh by reinforcing an eroded levee with a rock dike.										
	CS-19 (FCS-19)	<b>West Hackberry Plantings (Demonstration)</b>	VP	1	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	N/A	C \$24,266	1994 \$125,461	I \$96,514	\$213,947 \$246,241
		This project will reduce marsh erosion from interior open water wave energy by vegetation planting techniques as well as hay bale fences.										

(Continued)

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Breaux Act (continued)	CS-20 (PCS-24)	<b>East Mud Lake Marsh Management</b>	MM	2	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	1520	C \$220,300	1996 \$1,152,168	I \$1,976,499	\$2,903,635 \$3,348,967
		The project will reduce wetland degradation by creating a hydrologic regime conducive to restoration, protection and enhancement of the Mud Lake area by using various types of water control structures and vegetative plantings. Structural components include culverts with flap gates, two (2) variable crest weirs, three (3) earthen plugs, and repair of existing levee.										
	CS-21 (PCS-25)	<b>Highway 384 Hydrologic Restoration</b>	MM	2	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	150	C \$90,160	2000 \$237,520	I \$740,829	\$700,717 \$1,068,509
		The Highway 384 project area along the northeast shoreline of Calcasieu Lake is experiencing wetland loss due to increased tidal volume, enlarged tidal routes, and saltwater intrusion. The project area has also been isolated from its major source of freshwater, the Calcasieu River Basin. The project seeks to improve hydrologic conditions with the installation of culverts, plugs, and weirs within the project area and to stabilize shorelines by rock-lining canals and planting vegetation. Salinity, shoreline change, and water level will be monitored and vegetation surveys will be conducted. Project construction was completed in February 2000 but only pre-construction data exists.										
	CS-22 (PCS-27)	<b>Clear Marais Bank Protection</b>	SP	2	USACE	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	1,067	C \$581,123	1997 \$2,232,708	I \$903,612	\$1,741,310 \$3,717,443
		The integrity of an existing water management levee between the GIWW and the project area was threatened by increased tidal action and boat wakes. In response, a 35,000 ft limestone breakwater was constructed to prevent continued erosion of the levee and to prevent encroachment of the GIWW into the project area which consists of hundreds of acres of highly organic freshwater marsh. This project will be monitored with aerial photography, shoreline surveys, cross-sectional surveys of the GIWW, and elevational surveys. Though this project is completed, only pre-construction data exists.										
	CS-23 (XCS-47/48i)	<b>Replace Hog Island, West Cove Control Structures</b>	MM	3	USFWS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	953	C \$330,473	2000 \$2,731,800	I \$1,404,081	\$4,581,454 \$4,466,354
		This project was authorized to replace the water control structures on three (3) major avenues of water passage that allow water to flow from saline areas into the project area's interior marshes. The new structures on Hog Island Gully, West Cove Canal, and Headquarters Canal will be operated to effectively discharge excess water, increase cross sectional area for movement of estuarine species, and help to curtail saltwater intrusion into the interior marshes. This project should help to maintain intermediate and brackish vegetation communities and increase submerged aquatic vegetation. Salinity, water level, and vegetation will be monitored.										
	CS-24 (PCS-26i)	<b>Perry Ridge (East) Shore Protection</b>	SP	4	NRCS	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	1,203	C \$277,300	1999 \$1,809,100	I \$578,213	\$2,223,518 \$2,664,613
		Marsh loss in the vicinity of Perry Ridge has been caused by water level fluctuations and tidal scour from the GIWW as the result of breaches in the northern spoil bank. As the GIWW has widened and deepened it has acted as a conduit for salt water to enter the fragile surrounding marshes. To protect these marshes, a 12,000 linear ft rock dike was constructed along the bank of the GIWW. This dike serves to protect the existing emergent wetlands, prevent further deterioration from erosion, prevent the widening of the GIWW, and reduce salinity spikes in the project area by keeping a pool of fresh water behind the rocks. Though this project is completed, only pre-construction data exists.										

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									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Breux Act (continued)	CS-25 (XCS-56)	<b>Plowed Terraces (Demonstration)</b>	SNT	4	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	N/A	C \$62,714	2000 \$213,800	I \$45,425	\$299,690 \$321,939
		Severely eroded marshes in the project area, adjacent to the GIWW, have resulted from excessive water level fluctuations, saltwater intrusion, and wind generated wave action. The soils of the area appear suitable for plow-constructed earthen terraces and provide an excellent opportunity to develop and demonstrate a non-traditional procedure for constructing earthen terraces in shallow water areas. These demonstration terraces are expected to serve as wave-stilling, sediment-trapping structures that provide a base for the establishment of emergent vegetation. Vegetation will also be planted. Terrace dimensions will be measured to determine total area of wetlands created and vegetative cover will be assessed.										
	CS-26 (XCS-36)	<b>Compost (Demonstration)</b>	MC	4	EPA	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	N/A	C \$57,000	2001* \$292,785	I \$75,548	\$370,594 \$425,333
		This project was authorized to evaluate the effectiveness of using tree trimmings as compostable material, using compost amended material in providing a growth medium for emergent vegetation, and determining settlement rates of the compost amended materials and tree trimmings. This project should also serve to increase coverage of emergent marsh vegetation by addition of compost to 10.3 acres of existing emergent marsh and open water. If composting proves to be a good medium for marsh vegetation in this demonstration project, it may be used in future Breux Act projects.										
	CS-27 (XCS-48)	<b>Black Bayou Hydrologic Restoration</b>	HR	6	NMFS	Sen. Gerald J. Theunissen Rep. Ronnie Johns	Cameron	3,594	C \$796,291	2001* \$4,154,300	I \$1,431,920	\$6,316,800 \$6,382,511
		The marshes in the Black Bayou project area have been subjected to hydrological changes such as reduced freshwater inflow, increased magnitude and duration of tidal fluctuations, increased salinities, higher water levels, and excessive water exchange. This project includes the construction of spoil banks, weirs, plugs, and culverts designed to allow freshwater from the GIWW into the wetlands and to create a hydrologic head that increases freshwater retention time and reduces salt water intrusion and tidal action in the wetlands. Vegetation will also be planted to decrease erosion and increase the establishment of emergent marsh. Salinity, shoreline change, and vegetation will be monitored.										
	CS-28 (XCS-48 (SA-1))	<b>Sabine Refuge Marsh Creation (Revised) Increment 1</b>	MC	8	USFWS/ USACE	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	993	C \$463,810	2001* \$4,867,000	I \$210,552	\$5,920,248 \$5,920,248
		This project will construct approximately 27,000 feet of earthen partitions in shallow open water areas to serve as material retention dikes for five marsh creation cells. Dredged spoil slurry obtained from operations and maintenance dredging of the Calcasieu Ship Channel will be deposited in the containment cells during USACE maintenance dredging events.										
	CS-29 (CS-16)	<b>Black Bayou Bypass Culverts</b>	HR	9	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	540	No Date \$711,579	No Date \$0	\$88,244	\$799,823 \$799,823
		This project was authorized to provide an avenue to remove excess water, which has contributed to marsh loss and shoreline erosion, from the Lakes Subbasin. This project's components include five 10 by 10 ft concrete box culverts with sluice gates to be installed in Black Bayou, and relocating LA Hwy 384 over the culverts. Operation of the structure will be in coordination with Calcasieu Lock and the Schooner Bayou and Catfish Point water control structures. This project is in the Phase 1 evaluation process.										

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Breaux Act (continued)	CS-30 (PCS-26ii)	<b>Perry Ridge West Bank Stabilization/Terracing</b>	SP	9	NRCS	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	83		No date		\$317,399
		This project was authorized to install rip-rap along the northern bank fo the GIWW in an area which was recently dredged to 30 ft to allow for the use of double barge traffic. This dredging has intensified bank erosion and has resulted in a breach of the bank, impacting interior wetlands. This project is in the Phase 1 evaluation process.										\$317,399
	ME-04 (XME-21)	<b>Freshwater Bayou Wetland Restoration</b>	HR/SP	2	NRCS	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	1,593	C	1998	I	\$2,770,093
		This project was constructed in 2 phases. Phase 1 was completed in 1995 and consisted of a rock dike to protect the west bank of Freshwater Bayou Canal from shoreline erosion. Phase 2 of the project was completed in 1998 and included the construction of several water control structures to improve the water management capability of the interior wetlands to mediate salinity and water level fluctuations increase vegetative cover.										\$2,923,123
	ME-08 (ME-08)	<b>Dewitt Rollover Plantings (Demonstration)</b>	VP	1	NRCS	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	N/A	C	1994	C	\$191,003
		This demonstration project was authorized to investigate the ability of vegetative plantings of smooth cordgrass ( <i>Spartina alterniflora</i> ) to colonize a newly accreted mudflat that will enhance sediment trapping and establish a buffer of vegetation to protect the beach from erosion. Plants were planted in a 1.5-mile-long strip on the Gulf of Mexico shoreline. After planting, the shoreline erosion rate remained consistent with the long-term range of erosion rates for this area but no plants remained 10 months after planting. The project was discontinued in 1996 because no plants remained.										\$91,764
	ME-09 (ME-09)	<b>Cameron Prairie Refuge Protection</b>	SP	1	USFWS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	247	C	1994	I	\$1,177,668
		A rock dike was constructed to protect approximately two (2) miles of eroded levee separating a 640-acre fresh marsh site from the high turbidities and erosive forces of the Gulf Intracoastal Waterway.										\$1,401,125
	ME-11 (PME-15)	<b>Humble Canal Hydrologic Restoration</b>	HR	8	NRCS	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	378	C	2001*	I	\$1,526,136
		The objective of this project is to restore historical hydrology to the project area by constructing three 48-inch flap-gated structures, which will continue to protect the area from saltwater intrusion from the Mermentau River and allow for drainage of high water levels from the marsh to the river.										\$1,526,136

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									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Breaux Act (continued)	ME-12 (PME-6)	<b>SW Shore White Lake Protection (Demonstration)</b>	SP	3	NRCS	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	N/A	C \$16,777	1996 \$20,025	C \$72,001	\$126,062 \$108,803
		This project was authorized to protect 25 acres of fresh and intermediate marsh along the southwest shore of White Lake. The area is exposed to high wave energy and severe shoreline erosion. 2,650 California bulrush ( <i>Scirpus californicus</i> ) plants were installed along the shoreline in three rows and vegetation was monitored after planting. After 12 months, plant percent survival was 0.17 and erosion rates reached 11.7 ft/year. Water depth combined with high wind generated wave energy were the likely causes of the plantings lack of success. This project was deauthorized in December of 1998 and is no longer monitored.										
		<b>Freshwater Bayou Bank Stabilization</b>	SP	5	NRCS	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	511	C \$219,547	1998 \$1,682,077	I \$632,258	\$3,998,919 \$2,533,882
	ME-13 (XME-29)	The main cause of wetland loss in this project area is boat wake-induced erosion of the canal spoil banks and the fragile organic soils of the adjacent marsh along the west bank of Freshwater Bayou Canal. The subsequent impact of tidal scour and seasonal salinity spikes entering the canal exacerbates the loss of shoreline marsh in the project area. To decrease the erosion rate and slow wetland loss, a 23,193 linear ft free-standing continuous rock dike was installed parallel to the shoreline.										
		<b>Pecan Island Terracing</b>	SNT	7	NMFS	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	442	C \$421,111	2000 \$1,450,700	I \$351,542	\$2,185,900 \$2,223,353
	ME-16 (PME-07a)	This project will convert areas of open water back to vegetated marsh through the construction of earthen terraces in shallow water areas.										
		<b>Freshwater Introduction South of Hwy 82</b>	HR	9	USFWS	Sen. Gerald J. Theunissen Reps. D. Flavin and M. Frith		296	No Date \$478,013	No Date \$0		\$607,138 \$607,138
		This project was authorized to address saltwater intrusion and lack of freshwater and sediment input in the project area. Project components include the installation of approximately eight (8) water control structures, breaching spoilbanks in areas near LA Hwy 82 to allow water to flow across the chenier, and the removal of plugs to facilitate water flow from the Lakes Subbasin south into the Chenier Subbasin. This project is in the Phase 1 evaluation process.										
	ME-17 (XME-42a)	<b>Little Pecan Bayou Control Structure</b>	HR	9	NRCS	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin		144	No Date \$1,120,480	No Date \$0		\$1,245,278 \$1,245,278
		This project will provide a means to remove excess water from the Lakes Subbasin by installing a water control structure within Little Pecan Bayou, constructing a freshwater conveyance channel with two water control structures through Grand Ridge Chenier to assist in excess water removal, and excavation of a collector channel within the marsh. This project is in the Phase 1 evaluation process.										
State	CS-01	<b>Holly Beach</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	88	C	1991, 1992, 1993, 1994	I	\$8,437,000
		The objective of this project is to protect the marsh north of the shoreline by expanding shoreline protection in phases from Ocean View, LA to the east near Calcasieu Pass. A total of thirty four (34) breakwaters were constructed in 1991, twenty-one (21) breakwaters were constructed in 1992, twenty-one (21) breakwaters were constructed in 1993, and nine (9) breakwaters were constructed in 1994 between Calcasieu Pass and Holly Beach, LA.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
State (continued)	CS-02	<b>Rycade Canal</b>	MM	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	1,200	C	1994	I	\$516,474
		The project area continues to experience a significant loss of wetlands and an increase in salinities. Water control on the Rycade Canal would stop salt water flow from Calcasieu Ship Channel through Black Lake into the wetland system to the south.										
	CS-04a-1	<b>Cameron-Creole Structure Automation</b>	HR	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	N/A	C	1999	I	\$700,000
		This project consists of automating three (3) existing water control structures along the east shore of Calcasieu Lake. These structures are remotely located and are difficult to manipulate. Automation of these structures will improve management capabilities in the Sabine National Wildlife Refuge.										
	ME-01	<b>Pecan Island</b>	FD	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	84	C	1992	I	\$487,152
		The purpose of this project is to introduce fresh water from the north to counteract the salt water intrusion from the south. The project consists of two (2) water control structures and approximately 5,700 linear ft of earthen embankment needed to channel water from White Lake to the south marshes.										
		<b>Blind Lake</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	N/A	C	1989	I	\$173,433
		The purpose of this project was to prevent the Gulf Intracoastal Waterway from breaching into Blind Lake. The project consisted of placing 2,339 linear ft of limestone breakwater along the south side of the GIWW adjacent to Blind Lake. The second phase of this project included planting giant cutgrass ( <i>Zizaniopsis miliacia</i> ) along the inside of the breakwater to enhance the accretion process.										
		<b>Brannon Ditch</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Calcasieu	480	C	1991	I	\$12,440
		This project included the construction of wooden breakwater fences along 2,200 feet of the GIWW across from Brannon Ditch in Calcasieu Parish. This area has experienced shoreline erosion in excess of 25 ft/yr. The breakwaters will reduce wave action from boats and the current from Brannon Ditch during periods of high discharge. Smooth cordgrass ( <i>Spartina alterniflora</i> ) was also planted behind the breakwaters in order to enhance accretion and increase the stability of this site.										
		<b>Sabine Shellbank Stabilization</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	10	C	1990	I	\$66,000
		The purpose of this project was to provide natural shoreline protection by using tidal currents to deposit clam shell on the shoreline. The benefits of this design over the use of permanent structures are lower cost, less disturbance of the natural habitat during construction, and allowing natural distribution of sediments and organisms without impediment.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
State (continued)		<b>Sabine Terraces</b>	SNT	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Cameron	110	C	1991	I	\$190,047
		A total of 128 earthen terraces were constructed in a checkerboard pattern and planted with smooth cordgrass ( <i>Startina alterniflora</i> ) in open water areas of the Sabine National Wildlife Refuge to increase the length of marsh-water interface, re-establish emergent marsh vegetation, reduce marsh fringe retreat by reducing wind-generated wave energy, increase overall primary productivity, and promote the deposition of suspended sediment.										
PCWRP		<b>Ellender Bridge</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Calcasieu	2	C	1992, 1993, 1995, 1996, 1999	I	\$39,061
		Brush fence constructed in 1992 to protect marsh exposed to the GIWW. Periodic maintenance has been done in subsequent years.										
		<b>Goose Lake</b>	SP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	1	C	1994, 1995	I	\$9,995
		Brush fences were constructed in 1994 along the GIWW at Goose Lake to slow the shoreline erosion at this intersection.										
		<b>Turner Bay</b>	SP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	2	C	1996-2000	I	\$83,000
		Brush fences were constructed in 1996 to protect the interior shoreline of Turner Bay. Periodic maintenance has been done in subsequent years.										
		<b>Kelso Bayou</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	1	C	1991, 1993, 1996, 1999	I	\$20,745
		Brush fences were constructed in 1991 to re-establish the eroded shoreline and promote sediment deposition along Kelso Bayou in Cameron Parish, LA. Periodic maintenance has been done in subsequent years.										
		<b>Portie Lakes</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	2	C	1992, 1996, 1998, 1999	I	\$29,000
		Brush fences were constructed in 1992 to decrease erosion by trapping sediment along the shoreline and interior marsh adjacent to Portie Lake. Periodic maintenance has been done in subsequent years.										
		<b>Cameron Creole</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	8	C	1990, 1992, 1994, 1997	I	\$66,400
		Brush fences were constructed in 1991 to trap sediment and act as a barrier to slow salt water intrusion in the interior marsh. Periodic maintenance has been done in subsequent years.										
		<b>Cameron Creole #2</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	2	C	1998, 1999	I	\$25,000
		Brush fences were constructed in 1998 to slow wave action and prevent continued shoreline erosion and erosion of the interior marsh.										

(Continued)



Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
PCWRP (continued)		<b>Black Lake</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	2	C	1993-1996, 1998, 2000	I	\$49,000
		Brush fences were constructed in 1993 to decrease wind fetch and prevent continued erosion of the Black Lake shoreline by wind-generated waves. Periodic maintenance has been done in subsequent years.										
		<b>Collicon Lake</b>	SP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	9	C	1996	I	\$6,000
		Vegetation was planted along the shoreline of Collicon Lake to slow the shoreline erosion, promote sediment accumulation, and enhance fish habitat.										
Vegetation		<b>Brown Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	154	C	1987, 1989, 1992, 1995	I	\$100,985
		The objective of this project was to create vegetation on a marsh creation project that utilized spoil disposal. A total of 37,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) and 1,400 seashore paspalum ( <i>Paspalum vaginatum</i> ) were planted.										
		<b>Grand Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	40	C	1987, 1995, 1998	I	\$27,620
		The objective of this project was to create a stand of emergent vegetation that will protect the shoreline from erosion and trap available sediment. A total of 2,520 smooth cordgrass ( <i>Spartina alterniflora</i> ) and 5,000 giant cutgrass ( <i>Zizaniopsis miliacea</i> ) were planted.										
		<b>Black Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	36	C	1988, 1992	I	\$32,500
		The objective of this project was to plant 13,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced erosion and trap available sediment.										
		<b>Lacassine</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	197	C	1988, 1989	I	\$54,000
		The objective of this project is to protect an island in Lacassine National Wildlife Refuge, Northwest of Grand Lake, adjacent to the GIWW. A total of 1,500 giant cutgrass ( <i>Zizaniopsis miliacea</i> ) and 10,000 bald cypress ( <i>Taxodium distichum</i> ) were planted.										
		<b>Mallard Bay</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	10	C	1988, 1998	I	\$5,500
		The objective of this project was to create a stand of emergent vegetation that will provide a living barrier against wave induced erosion and trap available sediments. A total of 1,600 giant cutgrass ( <i>Zizaniopsis miliacea</i> ) and 250 California bulrush ( <i>Scirpus californicus</i> ) were planted.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>Rollover Bayou</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	24	C	1988	I	\$12,360
		The objective of this project was to plant 2,060 smooth cordgrass ( <i>Spartina alterniflora</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced erosion and trap available sediments.										
		<b>Sabine NWR</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	69	C	1988	I	\$37,500
		This project included the planting of 15,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) within the Sabine National Wildlife Refuge to provide a barrier against erosion.										
		<b>Blind Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	5	C	1990	I	\$2,400
		The objective of this project was to plant 400 giant cutgrass ( <i>Zizaniopsis miliacea</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced erosion and trap available sediment.										
		<b>Sabine Terraces</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	48	C	1990	I	\$58,760
		Approximately 20,800 smooth cordgrass ( <i>Spartina alterniflora</i> ) were planted on 128 earthen terraces constructed by a state-funded project to decrease fetch and minimize wind-induced wave erosion. The vegetation was planted to stabilize the earthen terraces and create new marsh.										
		<b>Mud Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	322	C	1991, 1992, 1994, 1996	I	\$225,906
		The objective of this project is to establish stands of emergent vegetation in the interior marsh that have been lost due to marsh erosion. Approximately 47,400 smooth cordgrass ( <i>Spartina alterniflora</i> ) were planted.										
		<b>Sweet Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	18	C	1995, 1997	I	\$9,899
		The objectives of this project were to plant 2,460 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Doland Lease</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	4	C	1992	I	\$3,771
		The objectives of this project were to plant 1,195 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced erosion and trap available sediment.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>Cameron Creole</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	28	C	1992	I	\$33,900
		The objective of this project was to plant 12,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment.										
		<b>Walker GIWW</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	9	C	1992	I	\$5,424
		The objective of this project was to plant 800 smooth cordgrass ( <i>Spartina alterniflora</i> ) to provide a vegetative buffer against wave induced erosion.										
		<b>White Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	8	C	1991, 1993	I	\$5,156
		The objective of this project was to provide a vegetative buffer against wave induced erosion by planting 1,825 giant cutgrass ( <i>Zizaniopsis miliacea</i> ).										
		<b>Pecan Island</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	29	C	1992, 1996	I	\$17,470
		The objective of this project was to create a living fence by planting 4,000 seashore paspalum ( <i>Paspalum vaginatum</i> ) and 910 California bulrush ( <i>Scirpus californicus</i> ) which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Little Pecan Bayou</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	23	C	1994	I	\$13,560
		The objective of this project is to plant 2,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) to re-establish stands of emergent vegetation in the interior marsh that have been lost due to marsh erosion.										
		<b>Shell Western</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	23	C	1994	I	\$13,831
		The objective of this project was to plant 2,040 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Boudreaux Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	23	C	1994	I	\$13,560
		The objective of this project was to plant 2,000 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>Tebo Point</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	33	C	1994, 1995, 1997	I	\$18,577
		The objective of this project was to plant 2,740 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment.										
		<b>Vermilion Corp #1</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	24	C	1995	I	\$7,160
		The objective of this project was to plant 1,056 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Vermilion Corp #2</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	24	C	1995	I	\$7,160
		The objective of this project was to plant 1,056 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>ARCO Road Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	8	C	1995	I	\$3,675
		The objective of this project was to plant 542 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Black Bayou Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	47	C	1995, 1997	I	\$26,713
		The objective of this project was to plant 1,940 California bulrush ( <i>Scirpus californicus</i> ) and 2,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Grosse Savanne Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	202	C	1995, 1997, 1998, 1999, 2000	I	\$113,599
		The objective of this project was to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife. A total of 16,755 California bulrush ( <i>Scirpus californicus</i> ) were planted.										
		<b>Sabine GIWW</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	10	C	1995	I	\$6,102
		The objective of this project was to plant 900 smooth cordgrass ( <i>Spartina alterniflora</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>Savanne Nouvelle Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	7	C	1995	I	\$3,390
		The objective of this project was to plant 500 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Umbrella Bay</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	37	C	1995, 1998	I	\$20,787
		The objective of this project was to plant 3,066 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment.										
		<b>Webb Gully</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	11	C	1995	I	\$5,560
		The objective of this project was to plant 820 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Welfare Bridge Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	11	C	1995	I	\$5,424
		The objective of this project was to plant 800 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Goose Lake</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	22	C	1997	I	\$12,679
		The objectives of this project were to protect the levee of the GIWW from eroding further and also to slow water movement in the interior marsh to slow water movement and prevent the loss of marsh sediments. A total of 1,120 smooth cordgrass ( <i>Spartina alterniflora</i> ) and 750 California bulrush ( <i>Scirpus californicus</i> ) were planted.										
		<b>Collicon Lake</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	95	C	1997, 1999	I	\$56,206
		The objective of this project was to plant 8,290 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment.										
		<b>Platform #1</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	25	C	1997	I	\$14,916
		The objective of this project was to plant 2,200 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment.										

(Continued)



Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>Black Bayou Cutoff</b>	VP	N/A	N/A	Sens. Theunissen and Mount Reps. Flavin and Johns	Calcasieu/ Cameron	13	C	1997	I	\$7,797
		The objective of this project was to re-vegetate the old banks of the bayou which will provide a natural passive hydrologic baffle to slow tidal exchange and also to provide a seed source for natural regeneration of emergent vegetation. A total of 1,150 smooth cordgrass ( <i>Spartina alterniflora</i> ) were planted.										
		<b>West Alkali Ditch</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	32	C	1997, 1999	I	\$18,984
		The objective of this project was to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and trap available sediment. A total of 2,800 smooth cordgrass ( <i>Spartina alterniflora</i> ) were planted.										
		<b>Marseillaise Bayou Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	50	C	1997, 1998	I	\$29,290
		The objective of this project was to plant 4,320 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and to re-establish areas of emergent vegetation in a large area of open shallow water.										
		<b>Platform #2</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	21	C	1998	I	\$12,204
		The objective of this project was to plant 1,800 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will reduce wave energy in a large open area of eroded marsh.										
		<b>Vermilion Corp #3</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Mickey Frith	Vermilion	2	C	1998	I	\$1,356
		The objective of this project was to plant 200 California bulrush ( <i>Scirpus californicus</i> ) to create a stand of emergent vegetation that will reduce the erosion along the backside of a protection levee that is preventing high salinities from entering a freshwater marsh.										
		<b>Prien Lake Marsh</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	14	C	1998	I	\$8,136
		The objective of this project was to plant 1,200 smooth cordgrass ( <i>Spartina alterniflora</i> ) to create a stand of emergent vegetation that will provide a living barrier against wave induced shoreline erosion and to re-establish areas of emergent vegetation in a large area of open shallow water.										
		<b>Cotton Well Road</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	25	C	1999	I	\$14,916
		The objective of this project was to plant 2,200 smooth cordgrass ( <i>Spartina alterniflora</i> ) to provide a living fence that will reduce fetch, reduce water movement, and provide a sediment source in order to accelerate the regeneration of this eroded marsh.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/ Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>Turner's Bay</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	14	C	1999	I	\$8,136
		The objective of this project was to plant 1,200 smooth cordgrass ( <i>Spartina alterniflora</i> ) to provide a living barrier against wave induced shoreline erosion and to trap available sediment.										
		<b>Kelso Bayou</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	3	C	1999	I	\$2,034
		The objective of this project was to plant 300 smooth cordgrass ( <i>Spartina alterniflora</i> ) to provide a living barrier against wave induced shoreline erosion and to trap available sediment.										
		<b>Brannon Ditch</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	11	C	1991	I	\$12,543
		The objective of this project was to plant 4,200 smooth cordgrass ( <i>Spartina alterniflora</i> ) and 100 roseau cane ( <i>Phragmites australis</i> ) in sediment accreted behind the state-funded shoreline protection project (above) to create a stand of emergent vegetation that will provide a living barrier against wave induced erosion and trap available sediment.										
		<b>West Gum Cove Marsh</b>	VP	N/A	N/A	Sens. Theunissen and Mount Reps. Flavin and Johns	Calcasieu/ Cameron	11	C	1995	I	\$5,424
		The objective of this project was to plant 800 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>West Hackberry Marsh</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	10	C	1995	I	\$5,085
		The objective of this project was to plant 750 California bulrush ( <i>Scirpus californicus</i> ) to create a living fence which will reduce wind generated wave action, reduce turbidity, encourage submerged aquatic vegetation, trap sediment, and increase food production for wildlife.										
		<b>Deepwater Cutgrass Demo</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	14	C	2000	I	\$8,136
		The objective of this project was to determine if cutgrass ( <i>Zizaniopsis miliacea</i> ) can successfully be planted in an open deepwater (18"-24"). To monitor for its ability to create emergent vegetation and create a living barrier, serving as a wave break to reduce wind and wave erosion and trap available sediment. A total of 1,200 plants were installed.										
		<b>Mermentau River</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	27	C	2000	I	\$15,730
		The objectives of this project were to protect and slow erosion of newly rebuilt and critically eroding sections of levee. Several areas adjacent to replaced water control structures were planted with a total of 2,320 smooth cordgrass ( <i>Spartina alterniflora</i> ).										
		<b>X-mas Tree Fence Demo</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	2	C	2000	I	\$1,243
		The objective of this project was to establish living vegetation within a Christmas tree fence. This vegetation would serve as a wind break, and assist in sediment trapping. If successful this would eliminate the need for yearly refilling with trees, and allow use of trees on a new site. A total of 300 roseau cane ( <i>Phragmites australis</i> ) were planted.										

(Continued)

Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/Sponsor <sup>5</sup>	Senator/Representative	Parish	Anticipated Acres Benefitted <sup>6</sup>	Activities <sup>7</sup>			Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>8</sup>
									Engineering, Design, and Landrights	Construction	Operation, Maintenance and Monitoring	
Vegetation (continued)		<b>CA Bulrush Sonde Demo</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	12	C	2000	I	\$6,780
		The objective of this project was to monitor the effects of know variations in salinity and duration on growth and vigor in plants, and to attempt ot grow California bulrush ( <i>Scirpus californicus</i> ) in areas with higher salinity. A total of 1,000 California bulrush were planted.										
		<b>GIWW Cutgrass Demo</b>	VP	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	9	C	2000	I	\$5,424
		The objectives of this project were to determine the suitability of planting giant cutgrass ( <i>Zizaniopsis miliacea</i> ) in various soil types, and to establish emergent vegetation in an actively eroding area to aide in wave reduction and sediment trapping. A total of 800 giant cutgrass were planted.										
		<b>West Prairie Ridge</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	34	C	2000	I	\$20,340
		The objectives of this project were to plant 3,000 California bulrush ( <i>Scirpus californicus</i> ) to provide a natural living barrier of emergent vegetation to protect against wind fetch and aid in decreasing water turbidity, and also to provide a seed source for natural regeneration of emergent vegetation.										
		<b>Gum Cove Ferry- GIWW</b>	VP	N/A	N/A	Sen. Willie Landry Mount Rep. Ronnie Johns	Calcasieu	12	C	2000	I	\$6,780
		The objective of this project was to plant 1,000 smooth cordgrass ( <i>Spartina alterniflora</i> ) to provide a natural living barrier against wave induced shoreline erosion on the south bank of the GIWW.										
Section 204/1135		<b>Brown Lake</b>	DM/ MC	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	315	C	1999	N/A	\$1,132,435
		This Section 204 project resulted in the pumping of 1.6 million cubic yards of dredged material to create 315 acres of land at an elevation conducive to marsh creation in the Brown Lake area near the Calcasieu River, 16 miles south of Lake Charles, LA.										
		<b>Sabine National Wildlife Refuge</b>	DM/ MC	N/A	N/A	Sen. Gerald J. Theunissen Rep. Daniel T. Flavin	Cameron	1,070	C	1992, 1996, 1999	N/A	\$1,560,804
		Also known as the "Calcasieu River & Pass" project, Phases 1, 2, and 3 of this Section 204 project provide for the disposal of dredged material removed from the area between mile 7.5 and 11.5 of the Calcasieu Ship Channel. A total of 4 million cubic yards of material were deposited within the Sabine National Wildlife refuge at an elevation conducive to marsh creation.										

<sup>1</sup> Restoration Program: Breaux Act=Coastal Wetlands Planning Protection and Restoration Act (CWPPRA); State=Restoration projects funded entirely by the State of Louisiana through the Coastal Restoration Division; PCWRP=Parish Coastal Wetlands Restoration Program; Vegetation=DNR/NRCS/SWCC Vegetation Planting Program; Section 204/1135= Water Resource Development Act Sections 204 and 1135 beneficial use of dredge material projects; WRDA=Water Resources Development Act; Mitigation=mitigation projects implemented by the Coastal Restoration Division.

<sup>2</sup> Project Number: State Number (Federal Number)

<sup>3</sup> Project Type: HR=Hydrologic Restoration; DM=Beneficial Use of Dredged Material; MM=Marsh Management; MC=Marsh Creation; SP=Shoreline Protection; FD=Freshwater Diversion; VP=Vegetation Planting; SNT=Sediment and Nutrient Trapping;

<sup>4</sup> PPL: Priority Project List (as authorized by the Breaux Act Task Force).

<sup>5</sup> Agency/Sponsor: NRCS=Natural Resources Conservation Service; USFWS=U.S. Fish and Wildlife Service; USACE=U.S. Army Corps of Engineers; EPA=Environmental Protection

<sup>6</sup> Anticipated Acres Benefitted: N/A for Breaux Act demonstration and deauthorized projects.

<sup>7</sup> Activities: C=Completed; I=Initiated; NI=Not Initiated; N/A=Not Applicable; a date in the construction column indicated construction completion date or anticipated date (\*).

<sup>8</sup> Original Baseline Costs and Current Cost Estimates for Breaux Act projects are from the USACE. Costs for other restoration programs are from DNR's Contract and Budget Section. Original Baseline Cost and Current Cost Estimate both include Contingency funds. Breaux Act PPL 9 project costs are for Phase 1 only. Vegetation program project costs are estimated based on plant size and quantity.

**Table 5.** Coastwide restoration projects and programs that fall in more than one region.

Coastwide Restoration Projects and Programs							
Restoration Program <sup>1</sup>	Project Number <sup>2</sup>	Project Name	Project Type <sup>3</sup>	PPL <sup>4</sup>	Agency/Sponsor <sup>5</sup>	Senator/Representative	Original Baseline Cost (top) and Current Cost Estimate (bottom) <sup>6</sup>
State	LA-01	<b>LDNR Dedicated Dredging Program</b>	DM	N/A	N/A	N/A	\$1,000,000
		The goal of this program is to use a small, mobile hydraulic dredge to move sediments from small inland waterways within the coastal zone of Louisiana and deposit the material to nourish and/or rebuild the threatened coastal marshes that are located immediately adjacent to those waterways. Preliminary selection of project areas includes fourteen (14) potential sites totalling 135 acres. To date, three (3) sites have been constructed and are described in the individual regions in which they occur.				N/A	\$2,000,000
Breaux Act	LA-02 (CW-7)	<b>Nutria Harvest for Wetland Restoration (Demonstration)</b>	N/A	6	USFWS	N/A	\$2,140,000
		This Breaux Act project will enable the Louisiana Department of Wildlife and Fisheries to establish an economic incentive program to trap and control overpopulated nutria, which are contributing to coastal wetland loss in certain areas, by promoting nutria meat consumption by humans.				N/A	\$2,140,000
Other	LA-04	<b>Shoreline Monitoring Effort with FEMA</b>	N/A	N/A	LSU	N/A	N/A
		The goal is to provide sea-state information including wave height, period, direction of propagation, water level, surge, current speed and direction and meteorological conditions on a real-time basis. DNR has entered into a cooperative agreement with LSU to assemble, test, deploy, operate and maintain 2 WAVCIS stations located in Terrebonne Bay and 2km off the coast of Timbalier Island. The stations will be maintained for 2 years and will aid in evaluating the effects of our barrier island restoration efforts in Barataria and Terrebonne basins and providing information for emergency response to storms and oil spills.				N/A	\$418,790
		<b>Coastal Wetlands Public Outreach Campaign</b>	N/A	N/A	N/A	N/A	N/A
		In cooperation with DNR's Public Information Office and the Breaux Act Public Outreach Coordinator, CRD has actively participated in educating the public about Louisiana's rapidly dwindling coastal wetlands, the many impacts this has on the state and nation, what has been done and is being done to curtail the erosion of this irreplaceable natural resource. CRD has contributed \$50,000 annually to public outreach since FY1996-97.				N/A	\$250,000
		<b>NRCS Biomass Production Program</b>	VP	N/A	NRCS	N/A	\$80,000
		This program was initiated to develop field studies to test plant species suitability and method of plant establishment on dredge disposal sites. The testing sites are being coordinated with the DNR/CRD small dredge program (LA-01). The Lake Salvador site was completed in 1999. Additional plant accessions for other disposal sites have been collected and are being propagated at the Plant Materials Center.				N/A	\$80,000
		<b>NWRC Biomass Production Program</b>	VP	N/A	NWRC	N/A	\$384,500
		This multi-year agreement will study endemic wetland plants for increased productivity, concentrating on increasing plant performance using conventional plant breeding techniques and tissue cultures. The first-year tasks (1998) consisted of defining an experimental design, acquiring necessary equipment and supplies, collecting and propagating plant specimens, and setting up the greenhouse equipment for conducting growth trials. These tasks provided the basis for the second year of the project (1999), during which an experiment to quantify plant growth performance relative to varying salinities and water levels was conducted in the greenhouse environment. The third year (2000) experiments focused on plant growth under various soil conditions at two salinity levels. During year 3 (2001) and year 4 (2002), results from these studies will be used to design and initiate field studies to quantify survival and growth in actual marsh restoration sites.				N/A	\$524,300

<sup>1</sup> Restoration Program: Breaux Act=Coastal Wetlands Planning Protection and Restoration Act (CWPPRA); State=Restoration projects funded entirely by the State of Louisiana through the Coastal Restoration Division.

<sup>2</sup> Project Number: State Number (Federal Number)

<sup>3</sup> Project Type: DM=Beneficial Use of Dredged Material; VP=Vegetation Planting; N/A=Not Applicable

<sup>4</sup> PPL: Priority Project List (as authorized by the Breaux Act)

<sup>5</sup> Agency/Sponsor: NRCS=Natural Resources Conservation Service; USFWS=U.S. Fish and Wildlife Service; LSU=Louisiana State University; NWRC=National Wetlands Research Center.

<sup>6</sup> Original Baseline Costs and Current Cost Estimates for Breaux Act projects are from the USACE. Costs for other restoration programs are from DNR's Contract and Budget Section. Original Baseline Cost and Current Cost Estimate both include Contingency funds.

**Table 6. Inactive State projects**

<b>Project ID</b>	<b>Project Name</b>	<b>Parish</b>
BA-03-b	Naomi (LaReussite) Diversion Enlargement of Capacity	Jefferson/ Plaquemines
BA-04-b	West Pointe a la Hache Diversion Enlargement	Plaquemines
BA-06	U.S. Highway 90 to GIWW Wetland Outfall Management	Plaquemines
BA-07	Couba Island-Restore Canal Closure	St. Charles
BA-08	Lake Cataouatche Shore Protection	St. Charles
BA-09	Salavador WMA Gulf Canal Project	St. Charles
BA-11/12	Tiger/Red Pass Diversion and Outfall Management and Grand/Spanish Pass Diversion	Plaquemines
BA-13	Hero Canal Diversion	Plaquemines
BA-14	Little Lake Marsh Management	Jefferson
BA-17-a	City Price Diversion - Home Place	Plaquemines
BA-17-b	City Price Diversion - Happy Jack	Plaquemines
BS-01-a	Bohemia Diversion Structure - Operation of Existing Structure	Plaquemines
BS-01-b	Bohemia Diversion Structure Outfall Management	Plaquemines
BS-04-b	White's Ditch Diversion Siphon Enlargement	Plaquemines
BS-05	Bayou LaMoque Diversion Outfall Management	Plaquemines
CS-04-b	Cameron-Creole Watershed Freshwater Introduction from GIWW	Cameron
CS-05-a	Sabine Freshwater Introduction	Cameron
CS-06	Black Lake South Shore Protection	Cameron
CS-07	Black Lake West Shore Protection	Cameron
CS-08	Black Lake North Marsh Management	Cameron
CS-10	Grand Lake Ridge Marsh Management	Cameron
CS-11-a	Sweet Lake/GIWW Bank Restoration (Phase I)	Cameron
CS-12	Black Bayou Ridge Freshwater Introduction	Cameron
CS-13	Back Ridge Freshwater Introduction	Cameron
CS-14	Tripod Bayou Control Structure	Cameron
CS-15	Boudreaux/Broussard Marsh Protection	Cameron
CS-16	Black Bayou Culverts	Cameron
ME-02	Hog Bayou Wetland Restoration and Enhancement	Cameron
ME-05	White Lake Shore Protection	Vermilion
ME-06	Big Burn Marsh Management	Cameron
ME-07	Deep Lake Marsh Protection	Vermilion
ME-10	Sawmill Canal Water Management (PD)	Cameron
MR-02	Pass a Loutre Sediment Fencing	Plaquemines
MR-04	Tiger Pass Wetland Creation(PD)	Plaquemines
MR-05	Pass a Loutre Sediment Mining (PD)	Plaquemines
PO-01-b	Violet Siphon Diversion Enlargement	St. Bernard
PO-01-c	Violet Siphon Diversion Outfall Management	St. Bernard
PO-02-b	Alligator Pointe Shore Protection	Orleans
PO-03-a	LaBranche Wetland Complete Management Plan	St. Charles
PO-05-a	SE Lake Maurepas Wetland - Reduce Ponding of Water	St. John
PO-05-b	SE Lake Maurepas Wetland - Small Diversion of Miss. River Water	St. John
PO-07	North Shore Wetland Marsh Restoration	St. Tammany
PO-11	Cutoff Bayou Marsh Management	Orleans
PO-12	West LaBranche Wetland Management	St. Charles
PO-13	Tangipahoa/Ponchartrain Shore Protection	Tangipahoa
PO-14	Green Point/Goose Point Marsh Restoration	St. Tammany
PO-15	Alligator Point Marsh Restoration	Orleans
TE-05-a	Grand Bayou Wetland Protection and Enhancement	Terrebonne
TE-07-a	Lake Boudreaux WP - Upper Petit Caillou Mgt. Area	Terrebonne



TE-07-c	Lake Boudreaux WP - Bayou Grand Caillou Mtg Area	Terrebonne
TE-07-d	Lake Boudreaux WP - Sub-Basin Water Mtg.	Terrebonne
TE-08	Bayou Pelton Wetland Protection	Terrebonne
TE-09	Bully Camp Marsh Management	Lafourche
TE-11	Isle Dernieres Cut Closure	Terrebonne
TE-12	Bird Island Restoration	Terrebonne
TE-13	Trinity Bayou Pilot Project	Terrebonne
TE-16	St. Louis Wetland Restoration	Terrebonne
TE-21	Falgout Canal South Wetland Creation (PD)	Terrebonne
TV-01-b	Shark Island/Weeks Bay Protection	Iberia
TV-05-1	Marsh Island Canal Backfilling - Increment 1	Iberia
TV-07	Marsh Island Sediment Fencing - Restoration	Iberia
TV-08	Redfish Point Shore Protection	Vermilion
TV-10	Weeks Bay Shore Restoration	Iberia

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## CONCLUSIONS

While coastal land loss remains a significant problem in Louisiana, the combined efforts by the public, and parish, state, and federal agencies have already made a substantial impact.

Louisiana has constructed coastal restoration projects at 289 locations to offset wetland loss. By December 2000, the CRD and its partners will have implemented 47 Breaux Act projects, 50 state projects (including 3 LDNR dedicated dredging and 2 mitigation projects), and 22 federal projects, and will have installed over 7 miles of Christmas tree fences and 394 miles of vegetation plantings. Project types range from complex marsh management projects, which require active management of water levels in enclosed areas to restore severely altered habitats, to more simple vegetation projects, which involve planting salt- and flood- tolerant marsh plants to bind sediments together and stabilize soils with their roots.

Each restoration project is constructed to meet specific restoration goals, and monitoring data are crucial in interpreting the results of individual projects. Because project effectiveness must be measured under different environmental conditions (e.g., drought and flood), most projects require years of monitoring to accurately determine project benefits. Monitoring results are used not only to evaluate the effectiveness of coastal restoration projects but also to guide the design and selection of future projects.

Among established projects, there are already several success stories. Dredged material and marsh creation projects, which primarily use sediment material dredged for navigational channel maintenance or for access canals, have created vegetated marsh habitat in areas that previously contained deteriorated wetlands or open water. Sediment diversion projects, which mimic natural deltaic processes, have created new marsh in the form of crevasse-splays in areas that were once shallow open water.

Monitoring data from the large-scale freshwater diversion project, Caernarvon, indicate that deteriorating wetlands can be revitalized on a large scale. This project created several hundred acres of new wetlands in a subsampled area in just a 3-year period, equating to a 5.9% increase in wetland area. In several instances shoreline erosion has been reversed, resulting in shoreline advance and the accumulation of sediment behind rock breakwaters. (See DNR contact information below for more detailed information on Breaux Act and State restoration projects)

Knowledge is a powerful tool in wetland conservation, not only for restoration project managers but also for concerned citizens. By remaining aware and informed of coastal problems and restoration efforts, individuals can help preserve Louisiana's wetlands. You can show your support by promoting wetland restoration efforts, by working with non-governmental coastal organizations, by attending local meetings, and by practicing conservation of wetland resources by following fishing and hunting regulations and not littering. You can participate in organized beach clean-ups, environmental education programs, and in DNR's Christmas tree program, either by donating your tree after the holiday season or by volunteering to help place discarded Christmas trees in brush fences in the marsh. Through concern and participation, citizens can play a role in the success of wetland restoration programs and personally contribute toward the goal of saving a national treasure.

For more information, visit our website at [www.saveLAwetlands.org](http://www.saveLAwetlands.org), call us at 1-888-459-6107, or write us at Louisiana Department of Natural Resources, Coastal Restoration Division, P.O. Box 94396, Baton Rouge, Louisiana 70804-9396.



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